ABSTRAK

Penelitian yang berjudul "Desain Didaktis Konsep Persamaan Garis Singgung Lingkaran untuk Sekolah Menengah Atas Kelas XI" didasari oleh penemuan masalah dimana siswa lupa dengan rumus karena lebih mengutamakan menghafal daripada memaknainya. Salah satu upaya pencegahan tersebut, penulis menyusun sebuah desain bahan ajar berdasarkan masalah-masalah pada *learning trajectory* yang berpotensi menjadi hambatan belajar siswa. Metode penelitian yang dilakukan adalah metode kualitatif dimana teknik pengumpulan data pada penelitian ini adalah menggunakan teknik triangulasi, yaitu penggabungan kegiatan wawancara, dokumentasi, dan observasi. Kemudian desain tersebut diterapkan kepada siswa kelas XI SMA Program IPA dan diperoleh hasil bahwa respon siswa yang muncul bermacam-macam. Salah satunya, tujuan penyusunan desain yang lebih mengarahkan siswa untuk membangun konsep sendiri sudah tercapai. Hal ini dapat dilihat dari hasil pekerjaan siswa yang lebih mengutamakan cara konsep dibandingkan dengan cara rumus. Akan tetapi, langkah-langkah desain yang disusun masih memunculkan loncatan alur belajar sehingga siswa kesulitan mengemukakan ide awal pemecahan masalah. Selain itu, kesalahan dalam melakukan *scaffolding* sangat berpengaruh bagi alur berpikir siswa sehingga perlu adanya perbaikan desain didaktis awal.

Kata kunci: Desain didaktis, *learning obstacle, learning trajectory, persamaan garis singgung lingkaran*

ABSTRACT

The study, entitled "Didactical Design the concept of Tangent Circle Equation for High School Class XI" was based on the discovery of the problem in which the students in fact forgot the formula due to their preference to memorization rather than interpretation. In an attempt to prevent the aforementioned phenomenon, the author then developed a design of teaching materials based on the problems in the learning trajectory that could potentially become learning obstacles for students. The research employed qualitative method in which the techniques of collecting data in this study were through triangulation techniques, namely the incorporation of the interviews, documentation, and observation. Then, the design was implemented towards the high school students of XI IPA program class and the results showed that the students gave various responses. One of the responses indicated that the purpose of the design which led the students to build their own concept had been chieved. It could be seen from the results of their works that the students preferred to use conceptual ways to the formula ones. However, steps of each design still promoted a leap of learning trajectory. As a result, the students undeniably had a trouble to express the initial idea. In addition, errors in performing scaffolding were very influential to students' learning trajectory. Therefore, the initial didactical design needed to be revised.

Keyword: *Didactical design, learning obstacle, learning trajectory, Tangent Circle Equation*